LISTING OF THE CLAIMS

Below is a listing of the pending claims of the subject application. No amendments have been made in this response.

Claims:

1-14. (Canceled)

15. (Previously Presented) A method using a chemical array reader having:

i) a holder to mount an array and hold the array at a reading position;

ii) a light system to illuminate a mounted array when at a reading position;

iii) a detection system having a focal plane, to detect light from different regions across the array emitted in response to the illumination, when at the reading position, and which generates a resulting signal for each of the regions across the array; and

iv) an autofocus system which detects and reduces offset between the different regions of an array at the reading position and a determined position of the focal plane;

the method comprising:

a) positioning a calibration member having a uniform fluorescent layer at the reading position so as to receive illumination from the light system and emit light in response thereto, which emitted light is detected by the detection system to generate a resulting calibration signal;

b) adjusting a position of the calibration member, when in the reading position, relative to the focal plane;

c) determining the position of the focal plane from the light detected at various adjustments; and

d) calibrating a sensitivity of the detection system from the detection system signals generated from the calibration member.

16. (Original) A method according to claim 15 wherein the focal position is determined based on a variation in detected light amplitude from the same region of

the calibration member or from multiple regions of the calibration member from which the detected light is the same when at the focal plane, which variation results from the adjustment of the calibration member relative to the focal plane.

17. (Previously Presented) A method according to claim 16 wherein the emitted light is the same from each of the detected regions of the calibration member.

18. (Original) A method according to claim 15 wherein the position of the calibration member and the holder, relative to the focal plane, are simultaneously adjusted.

19. (Original) A method according to claim 15 wherein the detection system detects light at multiple wavelengths from the calibration member or array, when either is at the reading position, and generates a resulting signal for each of multiple detected wavelengths for a region of the calibration member and each of the regions across the array, and wherein the method comprises positioning a calibration member in (a) which emits light at the multiple wavelengths in response to illumination from the light system.

20. (Original) A method according to claim 15 wherein the light system illuminates a region and the detection system detects from a region, and the reader additionally comprises a scan system which simultaneously scans the illuminated and detected regions across the different regions of the array when at the reading position.

21. (Original) A method according to claim 20 wherein the scan system additionally scans the illuminated and detected regions across different regions of the calibration member when at the reading position, such that the detection system generates resulting signals for each of the different regions across the calibration member, which are used to determine the focal plane position.

22-26. (Canceled)

27. (Original) A method according to claim 15, additionally comprising:

reading an array by positioning the array at the reading position such that the

detection system detects light from different regions across the array emitted in response to the illumination, and generates a resulting signal for each of the regions across the array.

28. (Canceled)

29. (Original) A method according to claim 27 wherein the data is communicated to a remote location.

30. (Original) A method comprising receiving data representing a result of a reading obtained by the method of claim 27.

31-32. (Canceled)

33. (Previously Presented) A method according to claim 15 wherein the uniform fluorescent layer of the calibration member is positioned coplanar to the light emitting regions across the array.

34. (Previously Presented) A method according to claim 33 wherein the calibration member comprises a substrate that is the same as that of the array.

35. (Previously Presented) A method according to claim 34 wherein the calibration member substrate is positioned coplanar to the array substrate.

36. (Previously Presented) A method according to claim 15 wherein the uniform fluorescent layer of the calibration member is the same thickness as the light emitting regions across the array.

37. (Previously Presented) A method according to claim 15 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye.

38. (Previously Presented) A method according to claim 37 wherein the uniform

fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5.

39. (Previously Presented) A method of using a chemical array reader, the method comprising:

a) providing a calibration member comprising a substrate with at least one calibrating region thereon;

b) providing a chemical array comprising a substrate with at least one chemical feature region thereon;

c) calibrating the chemical array reader using the calibration member by a method comprising:

i) positioning the calibration member at a reading position of the chemical array reader;

ii) illuminating the calibration member with light from a light system of the chemical array reader;

iii) detecting light emitted from the calibration member in response to the illuminating light with a detection system of the chemical array reader to generate a resulting calibration signal;

iv) adjusting the position of the calibration member relative to the detection system;

v) repeating steps (ii) to (iv) until a focal plane of the detection system can be determined from the calibration signals generated at various adjustments; and

vi) calibrating at least one sensitivity setting of the detection system from the calibration signals generated from the calibration member when positioned at the focal plane of the detection system; and

d) reading the chemical array using the calibrated chemical array reader by the method comprising:

i) positioning the chemical array at the focal plane of the detection system;

ii) detecting light emitted from different regions across the chemical array in response to illuminating the chemical array with light from the light system; and

iii) generating a resulting data signal for each of the detected regions across the array.

40. (Previously Presented) A method according to claim 39 wherein the calibrating region of the calibration member is positioned coplanar to the chemical feature region on the chemical array.

41. (Previously Presented) A method according to claim 39 wherein the calibration member comprises a substrate that is the same as that of the chemical array.

42. (Previously Presented) A method according to claim 39 wherein the calibration member substrate is positioned coplanar to the array substrate.

43. (Previously Presented) A method according to claim 39 wherein the calibrating region on the calibration member comprises a uniform fluorescent layer.

44. (Previously Presented) A method according to claim 43 wherein the uniform fluorescent layer of the calibration member is the same thickness as the chemical feature region on the array.

45. (Previously Presented) A method according to claim 43 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye.

46. (Previously Presented) A method according to claim 45 wherein the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5.

47. (Previously Presented) A method according to claim 39 wherein the data is communicated to a remote location.

48. (Previously Presented) A method comprising receiving data representing a result of a reading obtained by the method of claim 39.